1. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 - 81x + 81 = 0$$

A. $x_1 \in [1.7, 1.9]$ and $x_2 \in [2, 3.75]$

B. $x_1 \in [0.69, 0.84]$ and $x_2 \in [4.7, 6.1]$

C. $x_1 \in [0.47, 0.65]$ and $x_2 \in [5.74, 7.32]$

D. $x_1 \in [35.93, 36.06]$ and $x_2 \in [44.58, 45.52]$

E. $x_1 \in [0.37, 0.51]$ and $x_2 \in [8.3, 10.3]$

---

2. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 - 47x + 15$$

A. $a \in [26.9, 28.3]$, $b \in [-7, -2]$, $c \in [-1.1, 3.4]$, and $d \in [-8, 4]$

B. $a \in [8.3, 9.1]$, $b \in [-7, -2]$, $c \in [1.5, 4.9]$, and $d \in [-8, 4]$

C. $a \in [2.5, 7.2]$, $b \in [-7, -2]$, $c \in [6.4, 8.6]$, and $d \in [-8, 4]$

D. $a \in [-1.6, 1.4]$, $b \in [-33, -24]$, $c \in [-1.1, 3.4]$, and $d \in [-20, -19]$

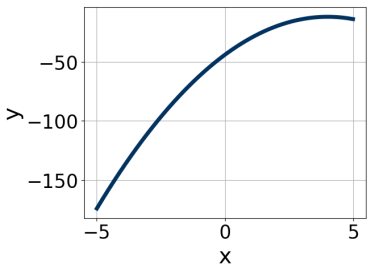
E. None of the above.

---

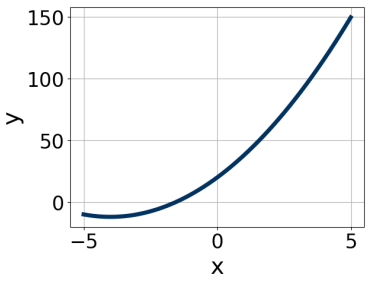
3. Graph the equation below.

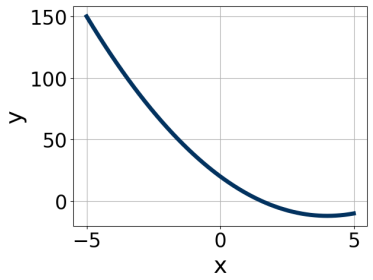
$$f(x) = -(x + 4)^2 - 12$$

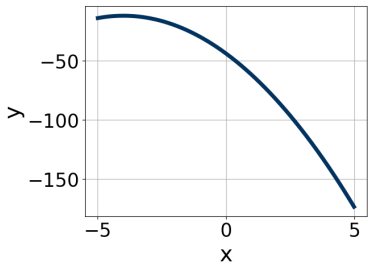
A.



B.



C. 

D. 

E. None of the above.

---

4. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 + 60x + 25$$

A. $a \in [4.6, 7.7]$, $b \in [3, 7]$, $c \in [5.5, 6.3]$, and $d \in [5, 12]$

B. $a \in [2, 5.9]$, $b \in [3, 7]$, $c \in [10.2, 14.5]$, and $d \in [5, 12]$

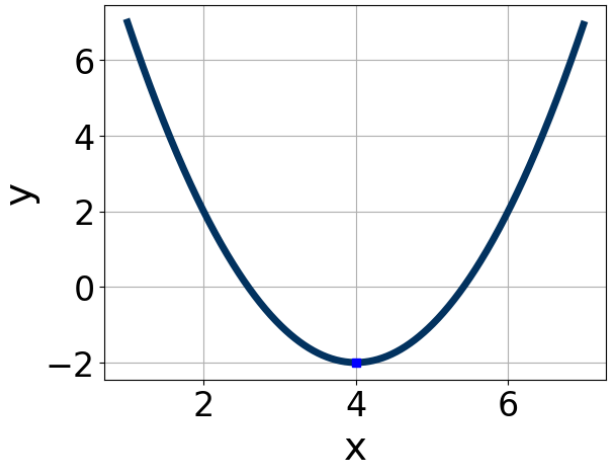
C. $a \in [0.1, 1.2]$, $b \in [21, 33]$, $c \in [-1.6, 1.6]$, and $d \in [26, 40]$

D. $a \in [10.1, 13.4]$, $b \in [3, 7]$, $c \in [2.7, 3.7]$, and $d \in [5, 12]$

E. None of the above.

---

5. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [1, 7]$, $b \in [-9, -5]$, and $c \in [11, 15]$

B. $a \in [1, 7]$, $b \in [7, 9]$, and $c \in [15, 20]$

C. $a \in [-3, 0]$, $b \in [7, 9]$, and $c \in [-19, -17]$

D. $a \in [-3, 0]$, $b \in [-9, -5]$, and $c \in [-19, -17]$

E. $a \in [1, 7]$, $b \in [7, 9]$, and $c \in [11, 15]$

---

6. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-19x^2 + 8x + 2 = 0$$

A. $x_1 \in [-11.46, -11.16]$ and $x_2 \in [3.2, 3.42]$

B. $x_1 \in [-0.45, -0.08]$ and $x_2 \in [0.35, 0.79]$

C. $x_1 \in [-14.57, -14.06]$ and $x_2 \in [14.54, 15.14]$

D. $x_1 \in [-0.88, -0.54]$ and $x_2 \in [-0.02, 0.31]$

E. There are no Real solutions.

---

7. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$13x^2 - 10x - 2 = 0$$

A. $x_1 \in [-2.52, -1.09]$ and $x_2 \in [11.78, 12.16]$

B. $x_1 \in [-1.11, -0.77]$ and $x_2 \in [-0.53, 0.3]$

C. $x_1 \in [-14.1, -13.45]$ and $x_2 \in [14.46, 15.58]$

D. $x_1 \in [-0.62, 0.01]$ and $x_2 \in [0.92, 1.01]$

E. There are no Real solutions.

---

8. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 - 57x + 54 = 0$$

A. $x_1 \in [11.46, 12.14]$ and $x_2 \in [44.94, 46.17]$

B. $x_1 \in [0.76, 1.06]$ and $x_2 \in [5.46, 6.34]$

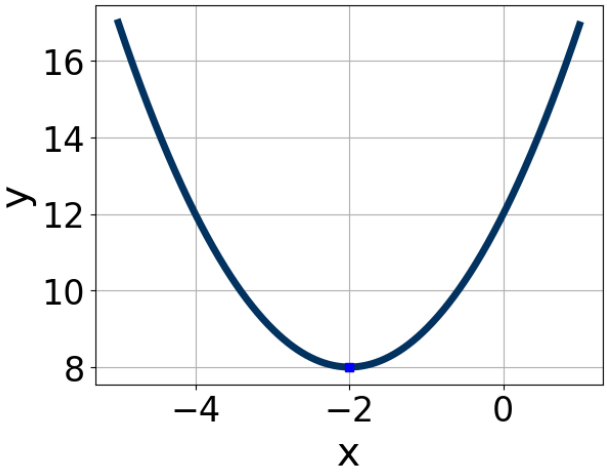
C. $x_1 \in [1.48, 1.53]$ and $x_2 \in [1.82, 4.42]$

D. $x_1 \in [0.99, 1.31]$ and $x_2 \in [4.31, 4.7]$

E. $x_1 \in [0.13, 0.65]$ and $x_2 \in [8.76, 9.75]$

---

9. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-0.6, 1.3]$, $b \in [-6, -3]$, and $c \in [11, 13]$

B. $a \in [-1.1, 0.2]$, $b \in [-6, -3]$, and $c \in [3, 6]$

C. $a \in [-0.6, 1.3]$, $b \in [-6, -3]$, and $c \in [-4, -1]$

D. $a \in [-1.1, 0.2]$, $b \in [1, 6]$, and $c \in [3, 6]$

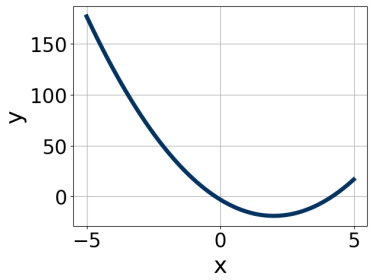
E. $a \in [-0.6, 1.3]$, $b \in [1, 6]$, and $c \in [11, 13]$

---

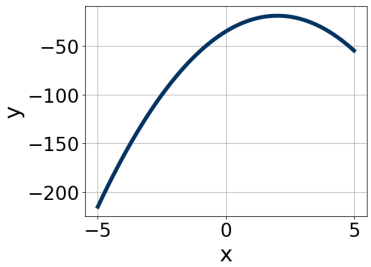
10. Graph the equation below.

$$f(x) = -(x - 2)^2 - 19$$

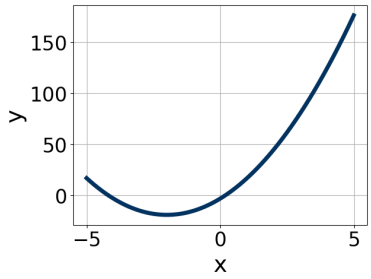
A.



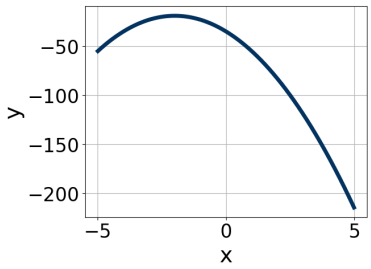
C.



B.



D.



E. None of the above.

---

11. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 + 69x + 54 = 0$$

A. $x_1 \in [-45.52, -43.94]$ and $x_2 \in [-24.15, -23.84]$

B. $x_1 \in [-2.64, -1.75]$ and $x_2 \in [-1.36, -1.19]$

C. $x_1 \in [-6.99, -6.27]$ and $x_2 \in [-0.45, -0.38]$

D. $x_1 \in [-9.98, -8.56]$ and $x_2 \in [-0.34, -0.25]$

E. $x_1 \in [-4.51, -2.44]$ and $x_2 \in [-0.85, -0.68]$

---

12. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$54x^2 + 75x + 25$$

A. $a \in [1.5, 3.2]$, $b \in [2, 8]$, $c \in [17.6, 18.16]$, and $d \in [1, 7]$

B. $a \in [0.4, 1.1]$, $b \in [29, 37]$, $c \in [-0.37, 1.43]$, and $d \in [42, 50]$

C. $a \in [23.8, 28.5]$, $b \in [2, 8]$, $c \in [1.52, 4.76]$, and $d \in [1, 7]$

D. $a \in [6.8, 10.1]$, $b \in [2, 8]$, $c \in [5.08, 7.07]$, and $d \in [1, 7]$

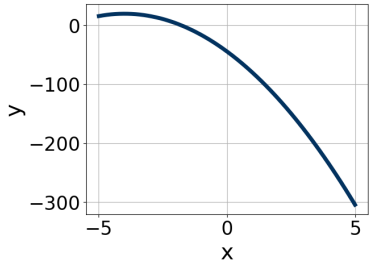
E. None of the above.

---

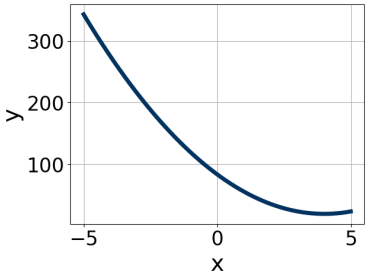
13. Graph the equation below.

$$f(x) = -(x+4)^2 + 19$$

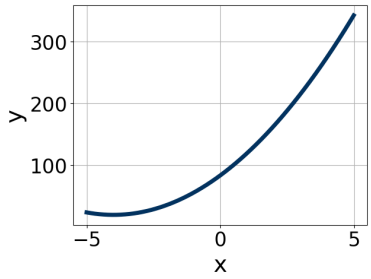
A.



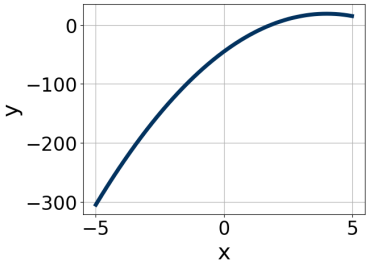
C.



B.



D.



E. None of the above.

---

14. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$36x^2 - 53x + 10$$

A. $a \in [-2.4, 2.2]$, $b \in [-50, -41]$, $c \in [0.8, 1.6]$, and $d \in [-9, -4]$

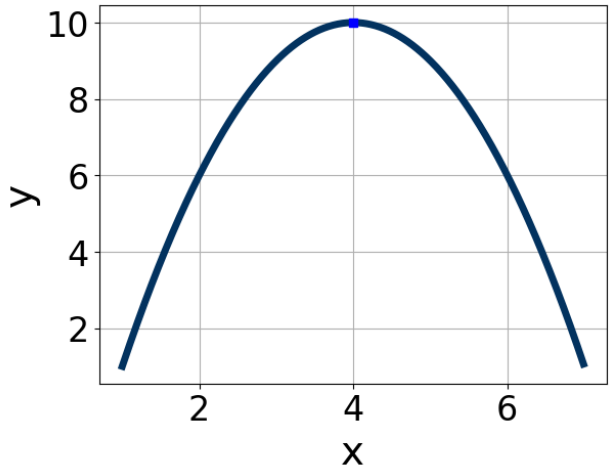
B. $a \in [-2.4, 2.2]$, $b \in [-5, 0]$, $c \in [24.3, 30.5]$, and $d \in [-4, 2]$

C. $a \in [1.6, 5.8]$, $b \in [-5, 0]$, $c \in [6.7, 9.1]$, and $d \in [-4, 2]$

D. $a \in [7.1, 8.5]$, $b \in [-5, 0]$, $c \in [2.8, 4.5]$, and $d \in [-4, 2]$

E. None of the above.

15. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-5, 0]$, $b \in [-9, -7]$, and $c \in [-26, -24]$

B. $a \in [0, 3]$, $b \in [-9, -7]$, and $c \in [25, 28]$

C. $a \in [-5, 0]$, $b \in [-9, -7]$, and $c \in [-6, -4]$

D. $a \in [-5, 0]$, $b \in [4, 10]$, and $c \in [-6, -4]$

E. $a \in [0, 3]$, $b \in [4, 10]$, and $c \in [25, 28]$

16. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$17x^2 + 7x - 8 = 0$$

A. $x_1 \in [-15.77, -15.22]$ and $x_2 \in [8.53, 9.44]$

B. $x_1 \in [-1, -0.62]$ and $x_2 \in [-0.21, 0.71]$

C. $x_1 \in [-0.7, -0.43]$ and $x_2 \in [0.88, 1.7]$

D. $x_1 \in [-24.66, -24.53]$ and $x_2 \in [23.87, 25.46]$

E. There are no Real solutions.

17. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-20x^2 - 15x + 6 = 0$$

A. $x_1 \in [-27.23, -26.85]$ and $x_2 \in [25.7, 27.9]$

B. $x_1 \in [-5.88, -5.01]$ and $x_2 \in [20.7, 22.9]$

C. $x_1 \in [-1.21, -0.87]$ and $x_2 \in [0.1, 0.9]$

D. $x_1 \in [-0.94, 0.48]$ and $x_2 \in [0.7, 2.1]$

E. There are no Real solutions.

---

18. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 - 8x - 16 = 0$$

A. $x_1 \in [-12.36, -11.71]$ and $x_2 \in [19.62, 20.69]$

B. $x_1 \in [-1.05, -0.61]$ and $x_2 \in [0.85, 1.75]$

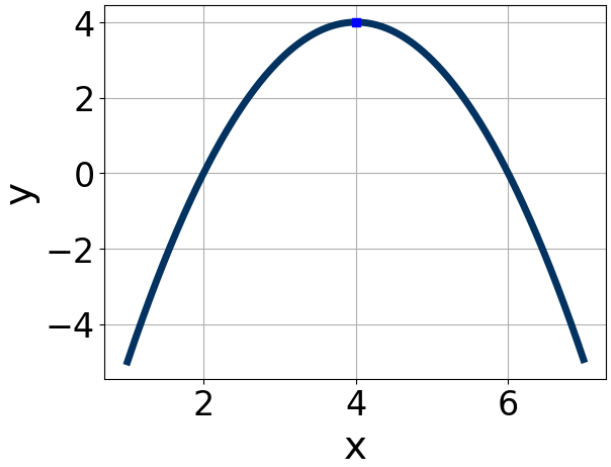
C. $x_1 \in [-4.54, -3.69]$ and $x_2 \in [0.24, 0.3]$

D. $x_1 \in [-0.66, -0.34]$ and $x_2 \in [2.05, 2.76]$

E. $x_1 \in [-2.03, -1.49]$ and $x_2 \in [0.35, 0.69]$

---

19. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-2, 0.2]$, $b \in [7, 9]$, and $c \in [-12, -8]$

B. $a \in [-2, 0.2]$, $b \in [-13, -7]$, and $c \in [-12, -8]$

C. $a \in [0.7, 1.1]$, $b \in [-13, -7]$, and $c \in [18, 23]$

D. $a \in [0.7, 1.1]$, $b \in [7, 9]$, and $c \in [18, 23]$

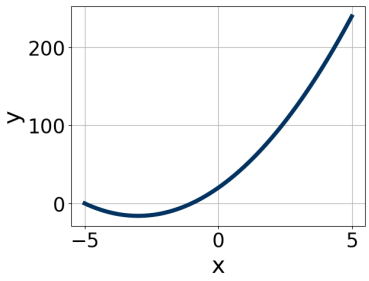
E. $a \in [-2, 0.2]$, $b \in [-13, -7]$, and $c \in [-21, -17]$

---

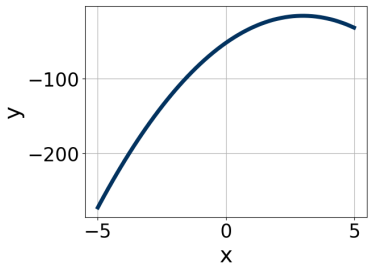
20. Graph the equation below.

$$f(x) = -(x+3)^2 - 16$$

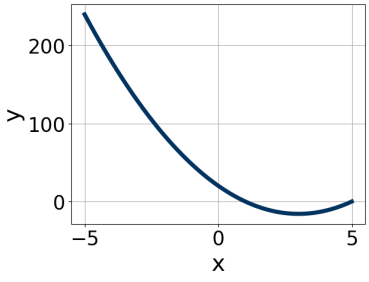
A.



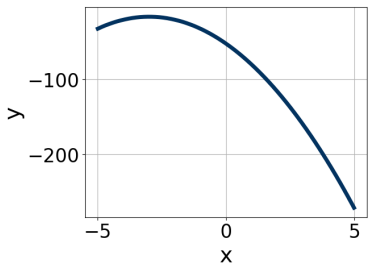
C.



B.



D.



E. None of the above.

21. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 - 21x - 54 = 0$$

A. $x_1 \in [-3.85, -3.18]$ and $x_2 \in [0.67, 0.88]$

B. $x_1 \in [-0.8, 0.96]$ and $x_2 \in [4.45, 4.58]$

C. $x_1 \in [-1.92, -0.67]$ and $x_2 \in [2.06, 2.64]$

D. $x_1 \in [-6.22, -5.51]$ and $x_2 \in [-0.51, 0.47]$

E. $x_1 \in [-24.34, -23.91]$ and $x_2 \in [44.99, 45.65]$

22. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$24x^2 + 38x + 15$$

A. $a \in [1.28, 2.59]$, $b \in [3, 10]$, $c \in [10.63, 14.02]$, and $d \in [5, 8]$

B. $a \in [0.84, 1.07]$, $b \in [13, 23]$, $c \in [-0.46, 1.61]$, and $d \in [14, 26]$

C. $a \in [3.23, 4.62]$, $b \in [3, 10]$, $c \in [5.33, 6.32]$, and $d \in [5, 8]$

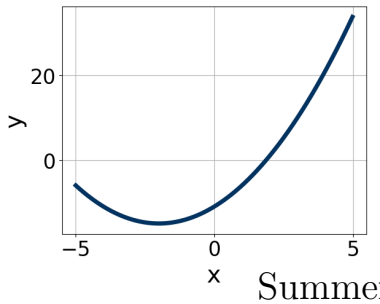
D. $a \in [11.82, 12.46]$, $b \in [3, 10]$, $c \in [1.49, 2.68]$, and $d \in [5, 8]$

E. None of the above.

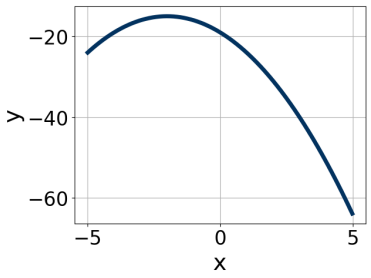
23. Graph the equation below.

$$f(x) = -(x - 2)^2 - 15$$

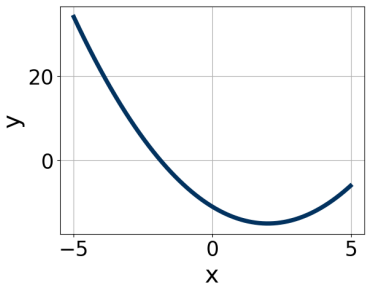
A.



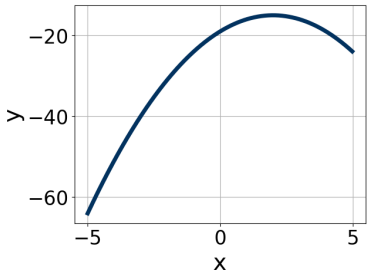
B.



D.



C.



E. None of the above.

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24. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$24x^2 - 50x + 25$$

A. $a \in [2.6, 4.2]$, $b \in [-6, 2]$, $c \in [6.24, 8.28]$, and $d \in [-6, 2]$

B. $a \in [9.8, 12.2]$, $b \in [-6, 2]$, $c \in [1.28, 2.4]$, and $d \in [-6, 2]$

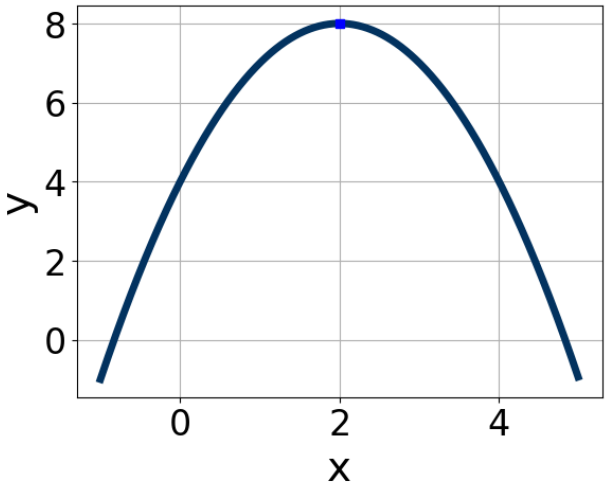
C. $a \in [3.4, 6.1]$, $b \in [-6, 2]$, $c \in [3.69, 5.33]$, and $d \in [-6, 2]$

D. $a \in [-1.5, 2.5]$, $b \in [-35, -22]$, $c \in [0.81, 1.48]$, and $d \in [-25, -12]$

E. None of the above.

---

25. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [-4, 0]$, $b \in [-6, -1]$, and $c \in [-14, -7]$

B. $a \in [1, 5]$, $b \in [-6, -1]$, and $c \in [12, 17]$

C. $a \in [1, 5]$, $b \in [4, 7]$, and $c \in [12, 17]$

D. $a \in [-4, 0]$, $b \in [4, 7]$, and $c \in [2, 6]$

E. $a \in [-4, 0]$, $b \in [-6, -1]$, and $c \in [2, 6]$

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26. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$20x^2 - 12x - 5 = 0$$

A. $x_1 \in [-0.94, -0.61]$ and $x_2 \in [-0.1, 0.7]$

B. $x_1 \in [-6.24, -5.08]$ and $x_2 \in [16.6, 19.4]$

C. $x_1 \in [-0.68, 0.72]$ and $x_2 \in [0.3, 1.4]$

D. $x_1 \in [-23.25, -22.33]$ and $x_2 \in [22.7, 24.8]$

E. There are no Real solutions.

---

27. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$16x^2 + 10x - 7 = 0$$

A. $x_1 \in [-1.9, -0.86]$ and $x_2 \in [-0.33, 0.66]$

B. $x_1 \in [-0.86, 0.5]$ and $x_2 \in [0.78, 1.2]$

C. $x_1 \in [-17.2, -15.65]$ and $x_2 \in [6.61, 6.82]$

D. $x_1 \in [-24.09, -23.27]$ and $x_2 \in [23, 23.38]$

E. There are no Real solutions.

---

28. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$10x^2 - 57x + 54 = 0$$

A. $x_1 \in [1, 1.28]$ and $x_2 \in [4.16, 4.76]$

B. $x_1 \in [11.78, 12.58]$ and $x_2 \in [43.2, 46.27]$

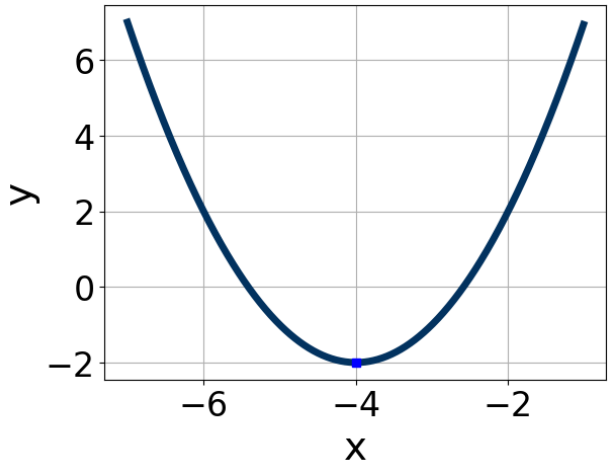
C. $x_1 \in [0.69, 0.93]$ and $x_2 \in [4.66, 6.35]$

D. $x_1 \in [1.44, 1.56]$ and $x_2 \in [2.77, 3.98]$

E. $x_1 \in [0.45, 0.71]$ and $x_2 \in [7.78, 10.35]$

---

29. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [0.3, 1.4]$, $b \in [-8, -4]$, and $c \in [13, 17]$

B. $a \in [0.3, 1.4], \quad b \in [-8, -4], \text{ and } \quad c \in [17, 19]$

C. $a \in [-1.7, -0.4], \quad b \in [-8, -4], \text{ and } \quad c \in [-20, -15]$

D. $a \in [-1.7, -0.4], \quad b \in [6, 10], \text{ and } \quad c \in [-20, -15]$

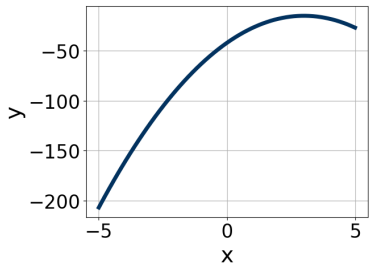
E. $a \in [0.3, 1.4], \quad b \in [6, 10], \text{ and } \quad c \in [13, 17]$

---

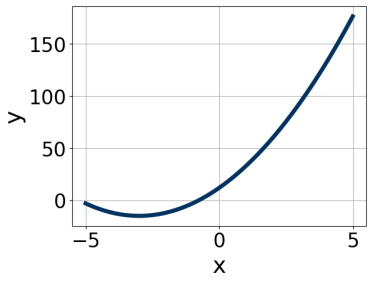
30. Graph the equation below.

$$f(x) = -(x+3)^2 - 15$$

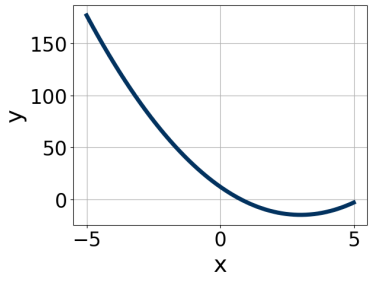
A.



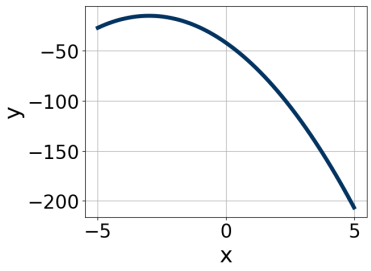
C.



B.



D.



E. None of the above.
